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None

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(54) Improvements in the manufacture of carpet underlays

(57) A carpet underlay is formed by applying a layer of foamed rubber to a backing surface and controlling the thickness of the layer by a doctor blade having teeth or projections spaced along its operative edge while imparting in a direction normal to the surface reciprocating movements between the blade and layer whereby areas of foamed rubber each bounded by grooves are formed.

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SPECIFICATION

Improvements in the Manufacture of Carpet Underlays

- This invention relates to the manufacture of
 5 carpet underlays incorporating a layer of foamed
rubber and its object is the formation on the surface
of the rubber of distinctive patterns which enhance
the appearance of the product and improve its
performance.
 10 Normally the layer of foamed rubber is formed by
 aerating suitably compounded latex, which may be
 natural, synthetic, or a mixture of both, and
 spreading it on a backing material separate from the
 carpet, or on the reverse side of the carpet itself. The
 15 thickness of this layer is controlled by a doctor blade
 set at a fixed distance, usually about 7mm, from the
 surface on which the foamed latex is deposited. The
 doctor blade is set at an angle to the backing surface
 and the foamed rubber is fed onto the surface just in
 20 front of the blade which controls and forms an even
 layer of the foamed rubber as it is carried by the
 backing surface past the blade. This blade may be
provided with projections or teeth uniformly spaced
along its edge. Such projection may be about
 25 3—5mm wide and may penetrate the foam to the
depth of 3—4mm, that is approximately 50%, so
forming on the surface of the foam a pattern of
longitudinal grooves. A wavy appearance can be
produced by moving the doctor blade backwards
 30 and forwards along its length. The pattern can be
varied by varying the speed of this movement.

- According to the present invention, a carpet
 underlay is formed by applying a layer of foamed
 rubber onto backing material and controlling the
 35 thickness of the layer by the action of a doctor blade
 having teeth or projections spaced along its
 operative edge while imparting in a direction
 normal to the layer reciprocating movements
 between the blade and layer whereby areas of
 40 foamed rubber each bounded by grooves of
 controlled depth are formed. Advantageously, these
 reciprocating movements take place at intervals for
 brief periods and may be such that the tips of the
 teeth or projections completely penetrate the depth
 45 of the foam at predetermined points. Therefore, the
movements may be arranged to result in the
formation on the surface of the foam of a pattern of
squares, rectangles or parallelograms, with deep
indentations at all corners. This results in an
 50 attractive appearance and tends to improve the grip
of the foamed rubber surface.

- This additional movement towards and away
 from the backing sheet may be produced by any
 conventional means applied to the backing material,
 55 or doctor blade or both such as cams, pneumatic
 actuators, solenoids, or a combination of such
 means. The spread foam is dried and processed in

- th usual manner, depending on the type of material
used. It may incorporate heat, or delayed gelling
 60 agents, although the invention is primarily intended
to be used without such ingredients. The pattern
does not collapse under the action of gravity partly
because foamed latex exhibits slightly thixotropic
properties, and partly because the air content
 65 renders the foam very light.

- In one specific example, the doctor blade has
 projections 2cms apart distributed along its edge.
 Thus, as the doctor blade traverses the foamed
 latex, grooves 2cms apart and about 3mm deep, i.e.
 70 about half the depth of the foamed material, are
 formed. However, at predetermined intervals, the
 latex is raised for a brief period to form transverse
 grooves while the projections penetrate the latex to
 the backing material. Thus, squares or rectangles
 75 are formed with deep indentations at the corners.
 The dimensions of the rectangles in the direction
 of the travel over the mass of latex past the doctor
 blade depends on the duration of the intervals
 between the up and down movements of the latex.
 80 These intervals can be varied to produce a
predetermined pattern.

CLAIMS

1. A method of manufacturing a carpet underlay
 comprising depositing foamed rubber latex
 compound on a surface of a sheet of backing
 85 material or of the reverse side of the carpet itself,
 effecting relative movement between said surface
 and a doctor blade extending transversely over said
 surface whereby the doctor blade is caused to
 90 spread the latex foam over the surface, further
 imparting relative reciprocating movements
 between said surface and said doctor blade, said
 reciprocating movements having a component
 normal to said surface for forming a pattern in the
 95 foamed rubber during the spreading thereof on the
 surface, and then drying and vulcanising the deposit
 thus formed.
2. A method according to claim 1, in which a
 doctor blade having teeth or projections spaced
 along its operative edge is used whereby areas of
 100 foamed rubber each bounded by grooves of
 controlled depth are formed.
3. A method according to claim 1 or claim 2, in
 which the reciprocating movements are effected at
 105 intervals of comparatively brief periods during the
 spreading of the foamed rubber on said surface.
4. A method according to claims 2 and 3, in which
 the tips of the teeth or projections are caused
 completely to penetrate the depth of the foamed
 110 rubber at predetermined points.
5. A method substantially as hereinbefore
 described in the accompanying specific example.
6. A carpet underlay when made by a method
 according to any one of the preceding claims.